1,121,051

PATENT SPECIFICATION

DRAWINGS ATTACHED

1,121,051

Inventor: WILLIAM CHARLES CARLTON

Date of filing Complete Specification: 2 Feb., 1967.

Application Date: 8 Feb., 1966. No. 5559/66.

Complete Specification Published: 24 July, 1968.

Index at acceptance:—A6 D(21A, 21C)

Int. Cl.:—A 63 b 59/12

COMPLETE SPECIFICATION

Improvements in or relating to Striking Instruments Incorporating Shock Absorbing Means

We, THE CARLTON TYRE SAVING COMPANY LIMITED of Shire Hill, Saffron Walden, Essex, a British Company do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to striking instruments incorporating shock absorbing means, by way of example to hockey sticks, cricket bats, baseball bats and the like.

Certain striking instruments, such as hockey sticks and cricket bats incorporate in their shafts means for absorbing shock which results from a strike with the instrument. Conventionally such shock absorbing means comprises strips of rubber like material set longitudinally into the shaft of the instrument, which shaft is usually made of wood, or alternatively the shaft may be made of a springy wood, such as cane.

This invention has as an object the provision of an improved striking instrument incorporating shock absorbing means with a view to simplifying its manufacture.

According to the invention there is provided a striking instrument including a moulded shaft formed from a plastics material, characterised in that a plurality of apertures are provided through said shaft in a first direction, which apertures are separated from one another by walls of said plastics material which walls are substantially rigid in said first direction, but are flexible in a second direction which is substantially orthogonal to said first direction and to the axis of the shaft, the arrangement being such that when the instrument performs a striking action in said second direction, said walls flex and absorb shock.

Preferably the whole of the striking instrument, with the exception of a suitable covering for the handle, is made by moulding plastics material, either in one moulding operation or a plurality of moulding operations.

In order that the invention may be clearly understood and readily carried into effect it will now be more fully described with reference to the drawings accompanying the provisional specification, in which:—

Figure 1 is a side view of a striking instrument according to one embodiment of the invention,

Figure 2 is a side view looking orthogonally to the view of Figure 1 of the instrument, and

Figures 3 to 6 are respective sections, on an enlarged scale, on A—A, B—B, C—C and D—D of Figure 2.

The invention will be described with reference to the drawings, by way of example, as applied to a hockey stick, although it is applicable to other striking instruments incorporating shock absorbing means.

The hockey stick illustrated is generally of conventional shape and with the exception of a covering for its handle, which is omitted from the drawings, is formed of moulded plastics material. In the particular embodiment illustrated the shaft 1 of the hockey stick, that is down to the line 2 in Figure 1, is first moulded together with an extension piece 3 of said shaft shown in dotted outline in Figures 1 and 2. The remainder of the hockey stick, namely the striking end 4 is subsequently moulded onto said extension piece 3. In an alternative embodiment, however, the whole of the hockey stick, with the exception of a covering for its handle, can be moulded simultaneously in one piece. Alternatively, the shaft could be moulded onto a wooden or plastics striking end.

As shown most clearly in Figure 2 the shaft 1 is provided with a plurality of apertures 5 therethrough in a direction orthogonal to the striking surface of the hockey stick, namely the surface indicated by reference 6 in Figure 2. This orthogonal direction is herein called the

first direction. The apertures 5 are separated from one another by walls 7 of the moulded plastics material which are of the width of the shaft 1 in said first direction, and so relatively rigid in said direction. The walls 7 are all inclined in the same sense to the axis of the shaft 1 as shown in Figure 2 and are relatively thin so that in the direction orthogonal both to said first direction and to the axis of the shaft 1, i.e. the direction of striking by the hockey stick, said walls 7 are flexible. Hence when the hockey stick performs a striking action the walls 7 flex so as to absorb shock.

The extension piece 3 is in the form of a prong projecting substantially centrally from the appropriate end of the shaft 1, and having a plurality of apertures 8 therethrough. In this particular embodiment two of the apertures are in the form of slots passing through the extension piece 3, being elongated in the direction of the axis of said extension piece 3, whilst the remaining three apertures are circular in section. This arrangement is by way of example and other shapes and distributions of the apertures 8 may be provided. As can be seen from the drawings the apertures 8 pass through the extension piece 3 in said first direction. The shaft 1, together with the extension piece 3 are first moulded, and subsequently the striking end 4 is moulded onto the extension piece 3. During moulding of the striking end 4 it will be appreciated that the plastics material of said striking end 4 will flow into the apertures 8 and fill said apertures 8. This is illustrated in Figure 3. As an alternative the shaft 1 and striking end 4 can be moulded simultaneously in one operation.

As can be seen from Figures 5 and 6 the shaft of the hockey stick is substantially circular in section at its handle end tapers to an oval section towards the line 2.

The hockey stick may be completed by the application to the shaft 1 of a suitable covering for the handle which may be of any suitable type.

Although the invention has been described with particular reference to its application to a hockey stick, it can also be applied to other striking instruments in which it is required to incorporate means for absorbing shock. For example, the invention may be applied to a cricket bat or a baseball bat.

WHAT WE CLAIM IS:—

1. A striking instrument including a moulded shaft formed from a plastics material, characterised in that a plurality of apertures are provided through said shaft in a first direction, which apertures are separated from one another by walls of said plastics material which walls are substantially rigid in said first direction, but are flexible in a second direction which is substantially orthogonal to said first direction and to the axis of the shaft, the arrangement being such that when the instrument performs a striking action in said second direction, said walls flex and absorb shock.

2. A striking instrument as claimed in Claim 1 characterised in that said walls extend across said shaft in said first direction, are all inclined in the same sense to the axis of the said shaft and are relatively thin so as to be flexible in said second direction.

3. A hockey stick being a striking instrument as claimed in Claim 1 or 2.

4. A cricket bat being a striking instrument as claimed in Claim 1 or 2.

5. A baseball bat being a striking instrument as claimed in Claim 1 or 2.

6. A striking instrument according to claim 1 substantially as described with reference to the drawings accompanying the provisional specification, or modified as herein described.

For and on behalf of
The Carlton Tyre Saving Company Ltd.,
W. C. CARLTON.
Director.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1968.
Published by the Patent Office, 25 Southampton Buildings, London, W.C.2, from which copies may be obtained.

1121051
1 SHEET

PROVISIONAL SPECIFICATION

This drawing is a reproduction of the Original on a reduced scale

FIG. 1.

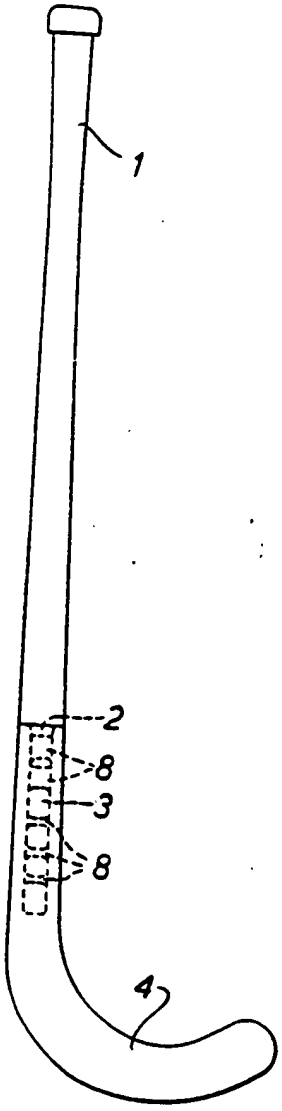

FIG. 2.

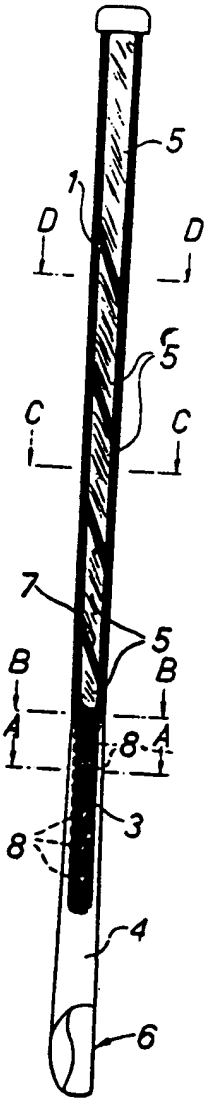

FIG. 3.

FIG. 4.

FIG. 5.

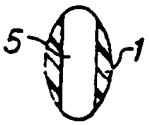

FIG. 6.